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Determinants of lifejacket use among boaters on Lake Albert, Uganda: a qualitative study

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ABSTRACT

Background Drowning is a major cause of unintentional injury death worldwide. The toll is greatest in low and middle-income countries. Over 95% of people who drowned while boating in Uganda were not wearing a lifejacket. We explored the determinants of lifejacket use among boaters on Lake Albert, Uganda.

Methods We conducted a qualitative enquiry with a hermeneutic phenomenological undertone leaning on relativism ontology and emic subjectivism epistemology. Focus group discussions (FGDs) and in-depth interviews (IDIs) were held with boaters in 10 landing sites. We explored experiences and perspectives on lifejacket use. We used thematic analysis technique to analyse data and report results according to the Consolidated Criteria for Reporting Qualitative Research.

Results We recruited 88 boaters in 10 FGDs and 11 to take part in the IDIs. We identified three themes: motivators and opportunities for lifejacket use, barriers and threats to lifejacket use, and strategies to improve lifejacket use. Many boaters attributed their lifejacket use to prior experience or witness of a drowning. Perceived high costs of lifejackets, limited knowledge, reluctance to use lifejackets because of distrust in their effectiveness, and the belief that it is women who should wear lifejackets were among the barriers and threats. Participants mentioned the need for mandatory enforcement together with community sensitisations as strategies to improve lifejacket use.

Conclusion Determinants of lifejacket use among boaters include experience or witness of drowning, limited knowledge about lifejackets and distrust in the effectiveness of the available lifejackets. Mandatory lifejacket wearing alongside educational interventions might improve lifejacket use.

BACKGROUND

Drowning is a major cause of unintentional injury death worldwide. The toll is greatest in low and middle-income countries (LMICs) that suffer over 90% of the burden.[1] In high-income countries (HICs), drownings mostly occur during leisure and recreational activities.[2–4] Conversely, the majority of drownings in LMICs occur during occupational activities and other activities of daily living such as fishing, collecting water and travelling.[5–7] The World Health Organization (WHO) - African region bears the world's highest estimated drowning death rates at 8/100 000 population.[1 8] Moreover, these global estimates do not include drownings from transportation and flood disasters which are frequent in many low-income settings.[8 9] Risk factors for drowning include non-use of lifejackets, fishing and water transportation.[5 10–12]

If worn correctly, the efficacy of lifejackets in preventing drowning is over 80%.[13–17] However, lifejacket wear rates in both HICs and LMICs are low. Eighty-one per cent to 90% of people who drown from boating activities in HICs do not wear lifejackets.[18–20] In Tanzanian fishing communities, lifejacket use is as low as 2%.[6] Literature shows that Uganda suffers perhaps the world's highest annual drowning death rate at 502/100 000 population in lakeside fishing communities where lifejacket use is chronically low.[5 7] A countrywide survey on drowning in Uganda found that over 95% of people who drowned while boating were not wearing a lifejacket.[21]

Factors attributed to low lifejacket use in HICs include discomfort, perceived swimming expertise and perceived low risk of drowning.[10 12 22] The most common activities that require frequent exposure to water in rural low-income settings of Uganda are fishing and water transportation.[23] Safety practices in these high-risk activities are left to individual decisions due to lack of appropriate national legislation and support systems. Yet, the findings among recreational boaters in HICs cannot be generalised to those involved in occupational boating activities in Uganda, leaving a gap in evidence on factors associated with lifejacket use among these communities. We explored the determinants of lifejacket use among boaters on Lake Albert, Uganda as a first step towards developing appropriate interventions for drowning prevention.

METHODS

Study design

We conducted a qualitative enquiry with a phenomenological undertone leaning on relativism ontology, guided by the subjectivism and emic epistemology. We believed that reality is a matter of context and perspective. Our study explored experiences with lifejacket use and to 'understand the world' from the lenses of boaters with varying ethnicities and cultures. Therefore, we used hermeneutic phenomenology to 'unveil the world' as seen and perceived by the community through their experiences and perspectives.[24]

Study setting and population

This study was conducted among fishermen who use boats, coxswains, transporters of passengers

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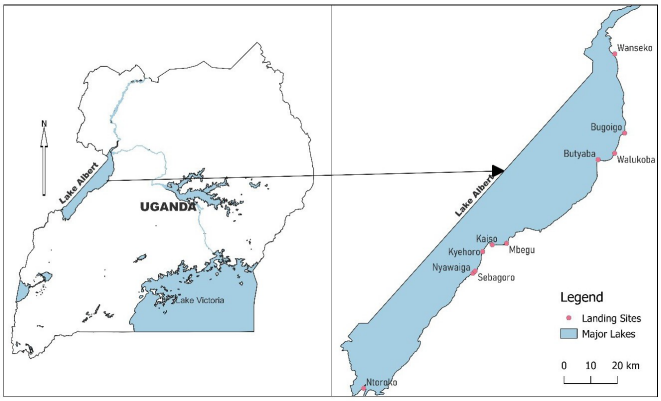

Figure 1 Map of Uganda showing location of Lake Albert and the study sites.

or merchandise using boats/water transport, other boat crew, lifejacket sellers, landing site leaders and boat owners (collectively referred to as boaters in this study) in the landing sites of Lake Albert, Uganda. Lake Albert is Africa's seventh largest fresh water body found along Uganda-Democratic Republic of Congo border, covering 5600 km^2 with a maximum depth of 48 m.[25] On the Ugandan side, the lake supports local livelihoods of about 4 million people who mainly depend on fishing, transportation and other water-related economic activities.[26]

Data collection

We conducted focus group discussions (FGDs) and in-depth interviews (IDIs) with purposively selected boaters. Through the local leadership in the landing sites, we recruited boaters who were drowning survivors in the last 12 months and were wearing a lifejacket at the time of the incident, those who used a lifejacket in the last 6 months and/or lifejacket sellers within the landing sites to take part in IDIs. The 6 and 12 months were taken to reduce on recall bias. The FGD participants had to be residents of the respective landing sites for not less than 6 months and were current/active boaters at the time of the study. We used IDIs to explore experiences with lifejacket use while FGDs were used to understand context-specific determinants of lifejacket use following the constructs of Capability, Opportunity and Motivation for behaviour change (COM-B) model.[27] We purposely selected 10 landing sites (figure 1) to ensure a representative geographical coverage of the different parts of the lake shoreline inhabited by diverse ethnicities and to improve on transferability of the findings. This variation was important because cultural beliefs across diverse ethnicities can influence lifejacket use and other safety practices. To ensure credibility and trustworthiness, we varied the FGDs for heterogeneity by including boaters who use and who do not use lifejackets to understand their perspectives. Saturation was achieved after the 9th FGD and the 10th IDI. That is to say, there was no new information arising from participants as noted in the daily de-brief meetings with the data collection team.

Interviews were conducted by experienced research assistants (RAs) who were fluent in Alur, Runyooro and Lugungu (most widely spoken languages in the study sites). The RAs (four ladies and two gentlemen) were bachelor's degree holders with background in social sciences. They were taken through a 3-day training on qualitative data collection specific to this study. The training also equipped them with good understanding of the study's objectives and how to administer informed consent. To improve on dependability, a user guide with a step-by-step approach to the conduct of the interviews was provided to all the RAs. Both FGD and IDI guides were translated into the local languages. All the IDIs and FGDs were audio recorded.

Data management and analysis

To ensure confirmability, the audio files were listened to by a different person proficient in the language but without interest in the study. The files were then transcribed verbatim and translated into English by RAs with proficiency in the respective languages. A transcription template was provided to the RAs. The English transcripts were uploaded onto NVivo V.12 software,[28] followed by unified coding and thematic analysis.[29] The uploaded transcripts were independently read by three authors (FO, LRN, TM). The aim was to unpack the data and get a deep understanding and familiarisation; and identify items of potential interest using deductive constructivist epistemology to generate meaning relevant to the study. Phrases in the texts were highlighted and labelled as codes. Dependability was ensured by comparing the codes for similarities and differences before merging them into clusters with similar meaning to form subthemes. We employed a convergent approach to compare the seemingly unrelated codes and subthemes to find meaning that links them together.[30] Subsequently, the themes were generated and compared. Discrepancies were resolved by consensus between the lead author, SPSK and JJ, who were his PhD academic supervisors. Results are reported according to the Consolidated Criteria for Reporting Qualitative Research.[31]

RESULTS

We recruited 88 boaters in 10 FGDs, mean age (SD) 44 (12.5) years, all male. For the IDIs, we recruited women (n=2) and men (n=9). Details of the participants are shown in table 1. Apart from Butiaba landing site where we conducted two IDIs, the rest of the landing sites had one FGD and one IDI each.

Three themes were identified: motivators and opportunities for lifejacket use, barriers and threats to lifejacket use, and strategies to improve lifejacket use. The findings are presented under these themes.

Motivators and opportunities for lifejacket use

Many FGDs and IDIs attributed their motivation to use lifejackets to awareness about their importance. They reported that a lifejacket keeps a person afloat and helps a person swim to safety in the event of a boat capsize, hence prevent drowning. Drowning experience or witnessing a drowning incident was reported to be a motivator for use of lifejackets.

> I was with him in the lake and I had my lifejacket but he didn't have one and so he drowned and died. (Drowning survivor, 27, IDI-1)
> The strong winds led us to capsize but because I had my lifejacket on, I didn't drown. I first helped my colleague by grabbing his leg, for about 10 minutes but the lifejacket started to soak, I had to release him and swam away. (Fisherman, 35, FGD1)

However, some FGDs indicated that they wore lifejackets not for safety but rather to ease the search for their bodies if they drowned and died. The ease of search was attributed to the bright colours and reflectors on the lifejackets that enables a person to be seen from a distance. When probed further, they reported that finding their bodies when they drown in the lake is important because they will then get a decent burial. Others reported that they used lifejackets because of their peers.

> However poor-quality those lifejackets may be, they help during search for your body; they make it easy to find your body in the lake if you die. (Landing site leader, 59, FGD6)

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Table 1 Demographic characteristics

In-depth interviews (IDIs)				Focus group discussions (FGDs)			
						Age (years)	
# IDI	Sex	Age (years)	Occupation	# FGD	Number of participants	Youngest	Oldest
IDI-1	M	27	Fisherman	FGD1	09	26	50
IDI-2	F	20	Fisherwoman	FGD2	09	26	52
IDI-3	M	43	Lifejacket seller	FGD3	09	32	67
IDI-4	M	57	Transporter	FGD4	09	30	67
IDI-5	M	67	Fisherman	FGD5	08	24	52
IDI-6	M	35	Transporter	FGD6	08	22	62
IDI-7	F	36	Fisherwoman	FGD7	08	21	29
IDI-8	M	32	Lifejacket seller	FGD8	08	26	51
IDI-9	M	52	Transporter	FGD9	10	32	62
IDI-10	M	30	Fisherman	FGD10	10	27	69
IDI-11	M	63	Transporter			Mean (SD)=44 (12.5)	

> Lifejackets decorate us as fishermen, we feel the prestige and uniformity that we are in lifejackets. (Fisherman, 20, IDI-2)

The boaters cited several opportunities for lifejacket use. Some FGDs reported that their employers usually provide them with lifejackets. In some landing sites, presence of bye-laws on lifejacket use and fear of penalties were noticeable opportunities. Many, however, noted that the bye-laws were not being enforced. The FGDs and IDIs reported that the availability of lifejackets within some landing sites could make it easy for people who would like to buy. They were also optimistic that there is willingness to use lifejackets if provided with the knowledge on the best types. In addition, there were some lifejacket-hire services in some landing sites for those who could not afford to buy them.

Barriers and threats to lifejacket use

Several hindrances to lifejacket use were noted. Some of these were related to unavailability of lifejackets and the high costs associated with their purchase. Availability and access to lifejackets varied across the landing sites. While some participants had the comfort of obtaining lifejackets within their landing sites, other FGDs noted that they have to travel to neighbouring districts or other landing sites to buy lifejackets. They were afraid that transport costs usually inflate the expenses, especially for some who had to travel 300–500 km to the capital city, Kampala.

> Going to buy a lifejacket for 70,000/- you have to incur transport fare to and fro, which becomes very expensive hence making us give up. But in case they are near we can buy them. (Fisherman, 26, FGD1)

Boaters cited insufficient knowledge, lack of interest and reluctance to use lifejackets. Some believed that their experience living in landing sites did not necessitate using a lifejacket and therefore considered them not important. The FGDs reported that they did not use lifejackets because they did not know how to wear them correctly.

> Even when I have the money, I can't buy the lifejacket because I don't trust it, and I don't know how to use it, so I'm not motivated to have one. (Fisherman, 28, FGD1)

Many FGDs reported some threats of lifejacket use. Many were hesitant to use the available lifejackets because of poor quality. There was widespread belief that the lifejackets sold at the landing sites are ineffective in preventing drowning and so they felt safer without one. Some reported that they only wear a lifejacket when they are travelling long distances, while others believed that it is women who should wear lifejackets because they are the ones who drown more often. The boaters were also hesitant to buy lifejackets because of fear of robberies by the Congolese while in the lake.

> We would love to own expensive lifejackets. However, you buy it today, and unfortunately tomorrow when you step into the waters, the Congolese will rob you and take your lifejacket. (Fisherman, 38, FGD3)

Boaters also reported that they substitute lifejackets with jerrycans, empty plastic bottles and papyrus mats, while others said they hang on their boats in case of a capsize. In fact, some believed that their jerrycans are better than lifejackets.

> The jerrycan for me is better than a lifejacket because it can save up to 12 lives but a lifejacket is made for just one person and an extra one, it will just over weigh (sic) and you find yourselves drowning. (Boat crew, 35, IDI-6)

Discomfort, non-compliance with bye-laws and corruption were also among the reasons for non-use of lifejackets. Some fishermen noted that their colleagues bribe the enforcement officers to allow them to sail without lifejackets. Others perceived that the lifejackets are a new thing and that their extensive experience in the profession did not require one.

Strategies to improve lifejacket use

The FGDs and IDIs suggested several strategies to improve lifejacket use. The majority indicated that there is need for community sensitisation on the importance, proper use and benefits of lifejackets. There was belief that lifejackets are ornamental and are not pivotal to safety. The need for sensitisation was mentioned by nearly all the IDI participants. For example, one emphasised that:

> We need people to come and sensitize us on the use of lifejackets, such that people can have more knowledge about the importance of having a lifejacket and its benefits. These messages should also go to our bosses. (Fisherman, 30, IDI-9)

Legislation was repeatedly mentioned by many participants. They emphasised and believed that enactment and enforcement of bye-laws in each landing site would help increase lifejacket wear rates. They further suggested that the legislation should ensure regulation of the quality of lifejackets availed to the fishing communities, and appropriate sizing of the lifejackets.

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Furthermore, the idea of strictness by the transporters was mentioned many times. The FGDs suggested that the transporters should be empowered by a bye-law to enforce lifejacket use.

> Ideally it should be a strict law that before getting onto the boat, you have your lifejacket on. (Landing site leader, 59, FGD6)

DISCUSSION

We explored the determinants of lifejacket use among boaters on Lake Albert, Uganda as a first step towards developing appropriate interventions to improve use and prevent drowning. While it was expected that the landing sites that had shops which sell lifejackets locally would have many boaters using them, this was not the case. Participants in this study reported that many boaters lacked lifejackets, attributing it to limited access and high costs. Lifejackets may be available within the landing site but some boaters perceived them to be costly. This finding is similar to other studies,[2 12 20] indicating that accessibility and affordability are both critical for improving lifejacket use.[32]

The COM-B's construct of capability[27 33] was demonstrated in the boaters' level of knowledge regarding lifejackets. The IDIs revealed limited knowledge regarding the recommended types of lifejackets for different user body weights and donning procedures. The vendors also lacked knowledge about their merchandise. This limited knowledge may have played a role in decision-making processes and behavioural regulation to wear lifejackets. Testimonies from drowning survivors and witnesses of drowning incidents as well as peer influence seemed to play a key role in lifejacket wear, as found elsewhere.[12] Conversely, many boaters reported using a lifejacket only for fear of arrests by law enforcement officers, as opposed to the primary purpose of preventing drowning. While this is still a good practice, the boaters are likely not to keep their lifejackets on as required, unless they anticipate an encounter with the enforcement team. Moreover, it is also likely that the lifejackets will be donned incorrectly, since the aim is to appear to be wearing a lifejacket. A lifejacket that is donned incorrectly is likely to completely fail in the purpose for which it was designed.[34 35]

It was intriguing to learn that some boaters only wear lifejackets for identification of their bodies when they die. This was attributed to the distrust in the quality of lifejackets sold in the landing sites. This distrust was higher among those who had witnessed their colleagues drown even when they had lifejackets on. This is a major stumbling block to lifejacket use. Although a person can drown when wearing a lifejacket, the choice of type, size, physical integrity of the lifejacket and donning accuracy are important for its effectiveness. For example, if a lifejacket is not well strapped and fitting the wearer, or if it has physical damages that affect its buoyancy, then its effectiveness is limited, and hence a person wearing one can still drown.[34 35] Lack of confidence in lifejackets was also attributed to low lifejacket use among recreational boaters in Canada.[36]

The discomfort due to excessive sweating during hot weather was linked to limited lifejacket wear. On the other hand, the boaters reported that during cold weather, they wear lifejackets to keep warm, but not necessarily for preventing drowning. Whereas we cannot change the weather conditions to suit lifejacket wear, there is need for attitudinal change by the boaters to recognise the benefits of lifejackets compared with the consequences of not using one. This finding is consistent with other studies.[2 20] Introduction of educational campaigns together with enforcement of mandatory lifejacket use seem to be the most preferred interventions identified in this study. Other studies have also identified educational interventions alongside enforcement of legislation to improve lifejacket use.[20 37–39]

Our study has some limitations. We were not able to determine the veracity of the claims of poor-quality lifejackets. Also, we cannot rule out the issue of information bias, especially recall bias and social desirability bias; boaters who experienced drowning may have more to say about their experiences compared with those who had never. Social desirability bias may have arisen from the wish to say what the researchers want to hear. However, we believe that our emic epistemological approach may have enabled participants to be free and forthcoming since they perceived the study team as part of them, with similar interests of identifying solutions to prevent drowning. There is need for further quantitative inquiry to distinguish users from non-users and associated factors.

CONCLUSION

Determinants of lifejacket use among boaters include prior experience or witness of a drowning incident, limited knowledge about lifejackets and distrust in the effectiveness of the available lifejackets. This qualitative exploration provides a basis for development of context-specific interventions aimed at improving use. Mandatory lifejacket wearing alongside educational interventions might improve lifejacket use.

What is already known on the subject

- The factors associated with lifejacket use among recreational boaters in high-income countries are known. But it is not clear if these factors are similar to those among boaters involved in occupational activities in rural low-income settings.
- The burden of drowning in lakeside fishing communities in Uganda is perhaps highest in the world, and lifejacket use is chronically low. But there is scarcity of detailed exploration of the determinants of lifejacket use among the occupational boaters.

What this study adds

- Through a detailed exploration, we established the determinants of lifejacket use among boaters involved in occupational activities in Lake Albert, Uganda. Some of these determinants are similar to those observed among recreational boaters in high-income settings.
- Similar interventions implemented in high-income settings need to be piloted and tested in Uganda.

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Contributors All authors made significant contributions to merit coauthorship. FO conceptualised the study, led the writing of the proposal, obtained ethical clearance, supervised the data collection process, oversaw the analysis and led the writing of the manuscript. SPSK and JJ provided technical guidance on the best qualitative approach for the study, and played a supervisory role in the entire process. FN advised on data collection process and participated in the interpretation of findings.

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FEM, KT and JBI participated in the review of the manuscript to ensure intellectual integrity. TM and LRN participated in the data analysis, while OK provided expert advice as the senior in the field of drowning prevention. All authors reviewed and approved the final manuscript. However, FO takes full responsibility for the conduct of the study and final manuscript as the guarantor; he had full access to the data, and controlled the decision to publish.

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Competing interests None declared.

Patient and public involvement Patients and/or the public were involved in the design, or conduct, or reporting, or dissemination plans of this research. Refer to the Methods section for further details.

Patient consent for publication Not required.

Ethics approval This study involves human participants and was approved by Makerere University School of Public Health Higher Degrees Research and Ethics Committee, and registered with Uganda National Council for Science and Technology (registration #SS992ES). Participants gave informed consent to participate in the study before taking part.

Provenance and peer review Not commissioned; externally peer reviewed.

Data availability statement Data are available upon reasonable request. Due to confidentiality, data are publicly unavailable. However, data may be availed upon reasonable request to the corresponding author on foporia@musph.ac.ug.

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